

What is research?

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I am going to take a critical look at what it means to do research. The point of view I express is a personal one that seeks to disturb the calm and complacent consciences of those who, myself included, are dedicated to research. You may not agree with me, but I hope that at least you will take what I say as an invitation to reflect and perhaps even formulate fresh points of view.

It all began when our primary or secondary school teachers inspired us by telling us about the struggles and miracles of science. This did not impress all the pupils, but it did us—after all, here we are doing research. Our ability to solve problems that the other kids found difficult was a factor that sharpened our interest in the sciences. We felt a kinship with science and mathematics and experienced a certain ego-boosting pride, as if to say, 'here I count for something.'

As lovers of scientific knowledge, simply thinking about the great events in scientific history was enough to feed our intellects. We were told of the exploits of Galileo, Newton, Darwin, Einstein or Bohr, who for us became heroes worthy of emulation.

Eventually, we finished our degrees with high grades and were able at last to gain access one of those 'high-tech' centers where, so we were told, research is done. 'But what exactly is it,' I ask, 'that we really do?'

History teaches us not to separate individual experience from general events. Hence, when Galileo observed the satellites of Jupiter, he was also demonstrating that not everything revolves around the Earth. Newton's laws were not formulated for the purposes of engineering applications but to reveal the non-teleological mechanism of our Universe. When Laplace told Napoleon that he had solved the system of equations which explain the motions of the planets without the need to invoke God, the important

point was not his mathematical jugglings but the struggle to arrive at the truth without resorting to ancient mythologies. Darwin put humankind in its place within the animal kingdom. Etc.

Changing ideas about the Universe are what drives the scientist. Before becoming a data collection on Nature, science was mainly devoted to combating superstition, the principal aim was rigorously to realize the dreams of Epicurus and Lucretius—to overthrow the idea of the gods controlling the Universe, to emancipate Nature from the grip of haughty lords and dark, mysterious forces, to demystify the Universe and face truth head on. In other words, knowledge for the sake of knowledge, the elevation of mankind with an understanding of his surrounding without needing to resort to white lies.

We live in different times. Nowadays oppression does not come from powers making claims on behalf of divinity. The value that motivates today's world is called Money rather than God. The conspiracy between capitalism and democracy is all-consuming, their enemies having either of two destinies: be absorbed or be eliminated. The applied sciences have always been allied to capitalism; they drive technology and flood the market with products labeled with a price. The pure sciences, or those with non-industrial applications, such as for the most part astronomical researches, were revised in terms of their driving principles; they were adapted to the needs of our times, absorbed. Present-day utilitarianism revolts at the idea of knowledge for its own sake. Even Buddhism, with its initially antimaterialist ideas, has been rendered into a marketable product in the book shops or in the form of courses on transcendental meditation. Culture has also been turned into a 'cultural industry', to use Adorno and Horkheimer's expression. Scientific knowledge has become a milch cow on which to grow fat, an industry providing jobs to some state employees in order to make possible they can live with their spouses and their children in the welfare state.

Genius' science is substituted for masses' science, for a democratic science which advances with the rhythm of mediocrity. The stomach is put before the brain. Everything is bureaucratized, everything requires papers and the conformity of the mediocrity in order to effect a project.

“Democratic resentment denies there may exist something which cannot be understood by everybody; in the democratic academy, truth is subject to public verification; truth is something which any idiot can understand. This is what is meant by scientific method: what is called science is an attempt to democratize the knowledge; an attempt to substitute the perspicacity for the method, the genius for the mediocrity,

through the achievement of an uniform operation procedure. The great equalizing terms dispensed by the scientific method are the tools, those analytical tools. The miracle of a genius is substituted for the uniform mechanism.” (Norman O. Brown, “Love’s body”, english retranslation from the spanish translation)

Those research ideals have been left behind. Intellectual restlessness, the search for truth created those colossi of knowledge who moved among the different fields like salmon among rapids. Today, such pirouettes have become impossible because knowledge has become heavy and sluggish. You will see an elephant skipping before you see a scientist knowing so many fields as our scientific forefathers did. Nowadays, a scientist has to specialize. Scientists have been specializing for quite a long time, but it is now a question of microspecialization. There are experts on cool stars, the Galactic bar, certain types of chemical reactions, etc. The most a scientist can hope to achieve is mastery of a few microspecializations, in which to invest their efforts or creative interests. It is hard to imagine someone getting into a specialization because it is his only interest, unless the system has sent him crazy enough to believe that his topic is the center of the world. This clearly is not so. Rather, it is more a case of converting the scientific process into an industrialized mass-production system. Everybody attends to his own cog so that the system runs smoothly.

It is a treason to our scientific forefathers’ ideals. Descartes gave science a sense for mankind as a search of truth in his ‘Rules for the direction of the mind’, and expressed in the first rule:

‘Thus, if somebody wants seriously to research the truth of the things, must not choose a peculiar science, since all of them are related among themselves; rather, he must only think about increasing the natural light of reason, not in order to solve this or that school difficulty but to get an understanding about life that shows us the behavior we have to choose.’

And, what does the scientific industry produce? The answer depends on the observer. From inside, we see tons of printed paper which is not read by anybody except some few specialists, each one about his topic. From outside we get a hermetic impression, such as we said ‘what amazing things must this people be discovering!’, it must be so difficult and advanced that it not accessible to my level of understanding’. That is the impression which is of interest to give to those who pay the taxes the state to contribute further money to research. Those who are dedicated to applied sciences have a easiest task because they promise technological advances. The pure sciences and with no application, in order to not loose the

thread of state subventions, must also talk about long-term technological progress in a country. If it is necessary, they lie. If the technological argument does not work, they attempt to impress people with the knowledge content. If it is necessary, they exaggerate. They say that a satellite or a telescope is going to create a revolution in astronomy, that we are going to observe the whole Universe and some parts of other ones,... and then the artifact arrives and the revolution has been rather small. Perhaps they scrape something else about some galaxy which was not in our collection.

We must not deceive ourselves. The more the history advances, the more difficult the achievement of a relevant truth is. The Newton's scientific activities during some year of his life with a notebook and a pen was more fruitful than that of thousands of the best actual scientist in their whole life with millions of dollars. It seems that there are many writings, many data, ... but in the last analysis our comprehension of the nature in a global sense advances are nearly imperceptible. Great efforts bear less fruit.

The fight for the economic power and social status promote fights among specialist from different fields rather than searching 'the truth' altogether. Astronomers ask money because they are disemboweling the cosmos secrets; the particle physics are disemboweling the matter secrets; the biologist the life secrets; ... What impatient people who wants to reveal all nature mysteries and does not want to leave anything for the next generations! Some data were still not totally exploited and we think about getting the next ones. Fast!, before any other makes the discovery! Impatience has never been typical of wise people. I know well your little secret: will to power. In regard to this topic, Nietzsche has made a deep psychological analysis of men intentions.

The fight among specialists from different branches is similar to that for defending the lands in the medieval age. The 'authorities of the matter', as they call themselves, are like lords of some lands who keep fervently their kingdom. When an intruder tries to insert his nose in a specialty which is not his, he will soon receive a cohort of 'authorities' reading his rights. Generally, the lands are also fenced with a language and symbols to be crossed only by experts. In some occasions, I would say that formalisms are made to frighten to other people, in order to make the entrance difficult.

Saying that doing research is collaborating in the peace and fecundity of mankind progress is slightly silly. Nations do not invest on research today because of beautiful phrases like the above one. Nations, like persons, look for prestige. A country send its sportsmen to the Olympic games to win prestige, in order

to get people says: ‘sportsman with certain nationality won a medal...’, and then the national hymn be played and all that. Next day, the newspapers publish in their pages ‘our sportsmen won some medals in ...’, this ‘our’ makes the reader feel proud to belong to his country and then he will like to produce for his society. In the same way, the state pays scientists, even non-technological ones. If they are not useful for industrial production, they are at least useful to produce prestige. It is very beautiful to find in the news: ‘scientific of our research centers discover...’, it makes the citizens believe he lives in a true country. There are meetings about science even in undeveloped countries, do they also want to collaborate from the peace and fecundity to the mankind progress while their citizens live on the poverty?

The great spanish philosopher Miguel de Unamuno, expressed in the presence of this events: ‘let them invent!’. This expression has more contain than a simple rebuff. If we are interested in knowing the truth, the way is not the microspecialization. Let the nations invert their efforts, their own pride will announce the news to the world and the ideas you were interested will arrive your ears. Of course, this position does not include neither a job nor a medal, only wisdom and prudence.

“Do they invent things? Invent them! Electric light is here as good as in the place where it was invented. (...) On one hand, science with its applications is useful to make life easier. On the other hand, it is useful to open a new door for the wisdom. And are not there other doors? Have not we another one?”
(Unamuno, letter to Ortega y Gasset)

“Yes, yes, I see it; a huge social activity, a powerful civilization, a lot of science, a lot of art, a lot of industry, a lot of morality, and then, when we have filled the world with industrial wonders, with large factories, with paths, with museums, with libraries, we will fall down exhausted near all this, and it will be, to whom?, was the man made for the science or the science for the man?” (Unamuno, “On the tragic feeling of life”)

That is, to whom? Perhaps, the history moment when we must raise again the question about we do has already arrived. Where are we going? The scientific method is awfully eroded. That thing with a reason for being at the beginning of modern age as a promoter of positive knowledges; that later lights century and its enlightenment; ... all that is part of the past. Today, science is as crushed as the contemporary art. In words by Feyerabend in his ‘Against method’:

‘Science failed to be a variable human tool to explore and change the world and rendered itself into a solid block of knowledge, impermeable to human dreams, wishes and hopes.’

Science loses its first attractiveness, simple technical operations remain. Which is the thing in whose name we do research?, in the name of truth?, of economy?, of prestige? Science as an amusement still remains but even the growing pedantry and heaviness limit this.

Doing research is fighting, what any other thing the human being could do? Fight against powers or to get powers, that depends on us. Science can be a revolution or deadlocked idleness. Still waters, without hitting the stones along their history, tend to form bogs.